

# Geographical Dispersion Pattern of Northern Zagrous Parts in Islam Abad Gharb and Introduction of Biological Shapes Related to Them

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## Abstract

The study of the vegetative coverage of a region in order to exploit its natural sources is of great importance. Islam Abad Gharb is located in Kermanshah between 45, 24 min to 38, 30 min of the eastern longitude and 33, 36 min to 35, 15 min of the northern latitude. Its extent is about 4654, and it is 1335 m above sea level. This city is dry according to amperage formula. It is a mountain city with an average annual rain of 414/72 m. The highest average temperature is 37°C in August, and the lowest average temperature is -20°C in December. The vegetative coverage of the region was determined based on the floristic method, and the biological shape of each plant was determined generally. There are 79 families, 225 genera, and 335 species. Six big families are: Brassicaceae (28 spp.), Gramineae (27 spp.), Papilionaceae (26 spp.), Apiaceae (24 spp.), Compositeae (29 spp.), and Labiate (17 spp.). Therophytes are the most common and compromise 47% of all plants. Others are Hemicryptophytes (24%), Phanerophytes (12%), and Geophytes (10%), that is, 54% of Iranian-Toranean plant.

**Keywords:** Islam Abade Gharb; Northern Zagrous; Geographical dispersion; Flora

## Introduction

Among the countries located in western south Asia, Iran has the most diversity of plants, and it is because of its large extent, climate, and topography. Climate diversity has led to an interesting ecosystem in the country that each family of plant has its own genus and species. Plants are live creatures, and humankind is dependent on them forever because plants are the sources of food, oxygen, energy, main materials, and medicinal drugs. However, plants are not treated by us the same as animals. It may be because they do not show any senility as do animals [1]. Although such an ecosystem is of great importance for Islam Abad Gharb, natural habitats have been extensively destroyed by humankind in different ways, especially through agricultural activities, so many valuable species have vanished. However, a natural ecosystem can be seen in the region, yet researchers have had a less head to it. Islam Abad Gharb is located in Kermanshah [2]. It is bounded by Paveh and Gavanrood in the north, Sarpolzahab and Gillangharb in the west, Ilam in the south, and Kermanshah in the east. It is between 45, 24 min to 38, 30 min of the eastern longitude and 33, 36 min to 35, 15 min of the northern latitude. Its extent is about 4654, and it is 1335 m above sea level. It is a mountain city with an average annual rain of 414/72 m. The highest average temperature is 37°C in August, and the lowest average temperature is -20°C in December. Figure 1 shows the rain curve-temperature of Islam Abade Gharb.

## Materials and Methods

To introduce the regions' flora, plants were collected from different regions from early march to late June in 2014. In this investigation, perfect samples were used and all vegetative samples, after the preparation of herbarium, were investigated in Payamenoor's herbarium and the herbarium of the agricultural faculty of Razi University; their identification was done after being fixed on herbarium sheets.

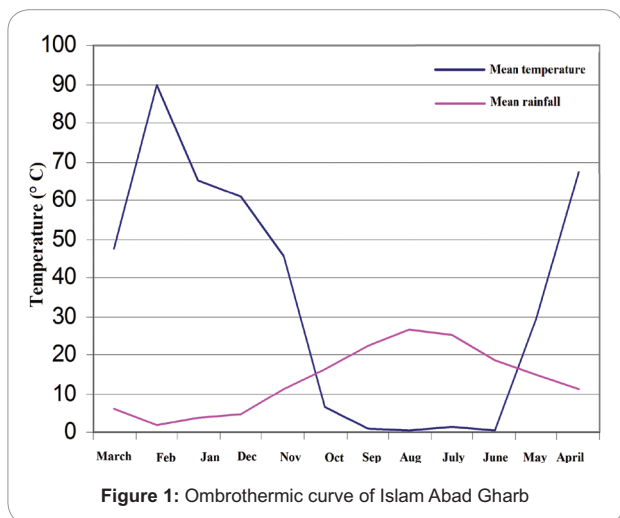
- Yazd flora [3], Iranica flora [4], herbal plants [5], names of Iranian plants dictionary [6], and plant ranking [7], Iran's chromophytes [8], Iran's astragalus [9].
- Iran's flora, butterfly-shaped family, Kermanshah flora.
- Application of Lu method—phytosociology in the determination of intergenus [10].
- Introduction of growth flora in the drainage basin of kernered [11].
- Introduction of 72 eatable plants in Kermanshah and Kordestan [12].
- Iraq flora [13] and Turkey flora [14].
- Introduction of flora and determination of the biological shape of growth elements [2].
- Common code of families and genus of Iran's flora [11].
- Investigation of the flora of Dalaho mountain in Kermanshah [1].
- Iran's weeds [15], herbal plants [5], Europe's flora [16].

Raunzier ranking was used for the determination of biological shapes [10]. This ranking is based on the unpleasant condition for growth.

## Results

Floristic investigations showed that in the region of study, there are 79 families, 255 genera, and 335 species. The families have the most diversity are Composite (29 spp.), Brassicaceae (28 spp.), Gramineae (27 spp.), Papilionaceae (26 spp.), Apiaceae (24 spp.), Labiateae (17 spp.). The results showed that the Composite family has the most diversity of all (Figure 2).

Moreover, the floristic investigation in the region show that the subspecies of *Acer monspessulanum* L. grow in all the growth regions of Zagrous, including western Azarbaijan, Kordestan, Kermanshah, Ilam, Lorestan, Gharmahal Bakhtiari, Isfahan, Kohgiluyeh and Boyerahmad, Fars, and Khozestan.



Plant name and family	Karyotype	Region plants
<i>Acantholimon olivieri</i> (Jaub. & spach) Boiss.	Ch	IT
<i>Acanthophyllum caespitosum</i> Boiss.	Ch	IT
<i>Acer negundo</i> L.	Ph	ES-IT
<i>Acer monspessulanum</i> L.	Ph	ES-IT
<i>Achillea wilhelmsii</i> C. Koch	He	IT
<i>Adonis aestivalis</i> L.	Th	IT
<i>Aegilops crassa</i> Boiss	Th	ES-IT
<i>Aegilops cylin drica</i> Host.	Th	SS-IT
<i>Aethionema cameum</i> (Banks et Soland.) B. Fedtsch.	Th	IT
<i>Aethionema grandiflorum</i> Boiss.et Hohen.	Th	ES-IT
<i>Agropyron trichophorum</i> (Link) Richter	He	ES-IT
<i>Ajuga chamaecistus</i> Ging.	He	IT
<i>Alcea hohenackeri</i> (Boiss. & Huet) Boiss.	Th	IT
<i>Alhagi camelorum</i> Fisch.	Ch	IT
<i>Alhagi persarum</i> Boiss. & Buhse	Th	IT
<i>Allium eriophyllum</i> Boiss. Var. eriophyllum	Ge	SS-IT
<i>Altheae hirsuta</i> L.	Th	ES-IT
<i>Alyssum strigosum</i> Banks & Soland.	Th	IT
<i>Alyssum margin atum</i> Steud ex Bioss.	Th	SS-IT
<i>Alyssum</i> spp.	Th	IT
<i>Amaranthus retroflexus</i> L.	Th	IT
<i>Amygdalus haussknechtii</i> (c. K Schneider.) Bornm	Ph	IT
<i>Amygdalus lycioides</i> Spach Var.	Ph	ES-IT
<i>Amygdalus scoparia</i> Spach.	Ph	IT
<i>Anchusa italica</i> Retz.	He	ES-SS-IT
<i>Anchusa</i> cF.	He	IT
<i>Andrachne telephoides</i> L.	He	ES-IT
<i>Anisosciadium orientale</i> Dc.	Th	SS-IT
<i>Anthemis altissima</i> L.	Th	ES-IT
<i>Anthriscus sylvestris</i> (L.) Hoffm	He	ES
<i>Antirrhinum</i> sp.	Th	ES-IT

<i>Arabis aucheri</i> Boiss.	Th	IT
<i>Arabis caucasica</i> Willd.	Th	IT-ES
<i>Aristolochia</i> Bottae-jaub & spach	He	IT
<i>Artemisia squamata</i> L.	Th	IT
<i>Arum conphalloides</i> Ky. ex schott	Ge	IT
<i>Arum giganteum</i> A. Ghahreman	Ge	IT
<i>Arundo donax</i> L.	Hel	ES-IT
<i>Astragalus</i> (Sect. platon ychium Bunge.	Ch	ES-IT
<i>Astragalus (tragacantha)</i> Sp.	Ch	IT
<i>Astragalus michauxianus</i> Boiss.	Ch	IT
<i>Avena</i> cF. <i>Wiestii</i> Steud.	He	ES-IT
<i>Avena fatua</i> L.	Th	ES-IT
<i>Bellevalia pycnantha</i> (C.koch) A.Los.	Ge	IT
<i>Biarum cardu chorum</i> (Schott) Engl.	Ge	IT
<i>Biebersteinia multi fida</i> DC.	C	ES-IT
<i>Biscutella didyma</i> L.	Th	SS-IT
<i>bursd-pastoris</i> L. Medicus	Th	ES-IT
<i>Boissiera squarrosa</i> Hochst.	Th	ES-IT
<i>Bongardia chrysogonum</i> (L.) Boiss.	Ge	IT
<i>Bromus danth oniae</i> Trin.	Th	ES-IT
<i>Bromus sericeus</i> Drobov.	Th	ES-IT
<i>Bryoni multiflora</i> Boiss.	He	IT
<i>Bryonia dioica</i> Jacq.	He	IT
<i>Bupleurum lancifolium</i> Hornem.	Th	IT
<i>Bupleurum rotundifolium</i> L.	Th	IT
<i>Calendula officinalhs</i> L.	Th	IT
<i>Callipeltis cucullaria</i> (L.) Stev.	Th	SS-IT
<i>Campanula flaccidula</i> Vatke.	Th	IT
<i>Campanula erinus</i> L.	Th	SS-IT
<i>Cannabis sativa</i> L.	Th	ES
<i>Cardaria draba</i> (L.) Desv.	Th	ES-IT
<i>Carduus arabicus</i> Jacq. ex Murray	Th	IT
<i>Carrichtera annua</i> (L.) D.	Th	SS-IT
<i>Carrichtera annua</i> (L.) Dc.	Th	SS-IT
<i>Carthamus tinctorius</i> L.	Th	IT
<i>Celtis cauca sica</i> Willd.	Ph	IT
<i>Centaurea virgata</i> Lam.	Th	IT
<i>Centaurea depressa</i> M. B.	Th	IT
<i>Centaurea irritans</i> Wagenitz.	Th	IT
<i>Centaurea koeieana</i> Bornm.	Th	IT
<i>Centaureum minus</i> Moench.	Th	ES-IT
<i>Centaurea solstitialis</i> L.	Th	IT
<i>Cephalaria</i> sp.	Th	IT
<i>Cerastium dichotomum</i> L.	Th	IT
<i>Cerasus vulgaris</i> Miller, Gard.	Ph	ES-IT
<i>Ceratocephalus falcate</i> (L.) Pers.	Th	IT
<i>Cercis siliguastrum</i> L.	Ph	ES-IT
<i>Ceterach officinarum</i> D.c	He	IT
<i>Chaenorhinum</i> sp. (DC) Reichenb.	He	ES-IT
<i>Chardinia orientalis</i> (L.) O. kuntza	Th	ES-IT

(Continued)

Plant name and family	Karyotype	Region plants
<i>Charophyllum macropodum</i> Boiss.	He	IT
<i>Chorzophora obliqua</i> (Vahl.) Juss.	Ph	IT
<i>Chrozophora tinctoria</i> (L.) Juss.	Th	IT
<i>Cicer arietinum</i> L.	Th	SS-IT
<i>Cichorium intybus</i> L.	He	IT
<i>Clypeola jonthlaspi</i> L.	Th	TH-ES
<i>Consolida oliveriana</i> (D. C) Schrod.	Th	IT
<i>Consolida orientalis</i> (Gay) Schrod.	Th	IT
<i>Consolida tomentosa</i> (Aucher) Schrod.	Th	IT
<i>Convolvulus schira zianus</i> Boiss.	Th	IT
<i>Convolvulus stachydifilius</i> Choisy	Th	SS-IT
<i>Convolvulus arvensis</i> L.	Th	SS-IT
<i>Convolvulus commutatus</i> Boiss.	Th	IT
<i>Corydalis verticillaris</i> DC.	Ge	IT
<i>Corylus avellana</i> L.	Ph	ES-IT
<i>Crataegus pontica</i> C. Koch	Ph	IT
<i>Crepis</i> sp.	Th	ES-IT
<i>Crocus haussknechtii</i> Boiss.	Ge	IT
<i>Cydonia oblonga</i> Miller, Gard.	Ph	ES-IT
<i>Cynodon dactylon</i> (L.) Pers.	Ge	ES-IT
<i>Cynoglossum creticum</i> Miller	He	ES-IT
<i>Cyperus alternifolius</i> L.	He	IT
<i>Cyperus cf Longus</i> L.	Hel	IT
<i>cyprum</i> Murb. Lunds Univ. <i>Rumex</i>	Th	SS-IT
<i>Daphna mucronata</i> Royle.	Ch	ES-IT
<i>Datriorrhiza umbroza</i> (Kar. et kir.) Nevski	Ge	ES-IT
<i>Datura stramonium</i> L.	Th	SS-ES-IT
<i>Descurainia sophia</i> (L.) webb et Berth.	Th	IT
<i>Dianthus orientalis</i> Adama subsp. Orientalis	Th	SS-IT
<i>Dianthus persicus</i> Hausskn. Mitt.	Th	IT
<i>Diploxaxis harra</i> (Forssk.) Boiss	Th	SS-ES-IT
<i>Echi nophora platyloba</i> Dc.	He	IT
<i>Echinoch loa crus – galli</i> (L.)	Th	ES-IT
<i>Echinops pungens</i> Traut V.	He	IT
<i>Erodium gruinum</i> (L.)	Th	IT
<i>Erodium x yrrhnchum</i> M.B.Subsp. oxyrrhum	Th	ES-IT
<i>Eryngium thyrsoides</i> Boiss.	He	IT
<i>Erysimum</i> L.	Th	ES-IT
<i>Allium ascalon icum</i> L	Th	ES-IT
<i>Erodium cicutarum</i> (L.) L.	Th	ES-IT
<i>Adiantum capillus-veneris</i> L.	Ph	ES-IT
<i>Euphorbia</i> SP.	He	IT
<i>Euphorbia cheiradenia</i> Boiss. et Hohen	He	ES-IT
<i>Euphorbia falcata</i> L.	Th	ES-IT
<i>Euphorbia seguieriana</i> Necker subsp. niciana (Brorb).	He	IT
<i>Euphorbia splendida</i> Mobayen	He	IT
<i>Euphorbia cond ylocrpa</i> M.B	He	ES-IT
<i>Euphorbia heteradenia</i> Jaub. & Spach.	He	IT

<i>Euphorbia</i> sp.	Th	IT
<i>Falcaria vulgaris</i> Beranh.	He	SS-ES-IT
<i>Ferulago angulata</i> (schlecht) Boiss.	He	IT
<i>Ferulago stellata</i> Boiss.	Th	IT
<i>Ficus carica</i> L.	Ph	ES-IT
<i>Fragaria vesca</i> L.	He	ES
<i>Fraxinus rotundifolia</i> (Foangustifolia Vahi) L.	Ph	ES-IT
<i>Gagea ova</i> Stapf.	Ge	IT
<i>Gagea reticulate</i> (pall.) Roem. et Schult.	Ge	IT
<i>Galium</i> sp.	Th	IT
<i>Galium</i> sp.	Th	IT
<i>Geranium lucidum</i> L.	Th	ES-IT
<i>Geranium</i> sp.	Th	ES-IT
<i>Geranium tuberosum</i> L.	Ge	ES-IT
<i>Gladiolus</i> sp.	Ge	IT
<i>Glaucium grandiflorum</i> Boiss. & Huetin Boiss.	He	IT
<i>Glycyrrhiza glabra</i> L.	Ge	IT
<i>Gypsophila</i> sp.	Th	IT
<i>Heliocarya</i> sp.	He	IT
<i>Hesperis persica</i> Boiss.	Th	IT
<i>Heterantheium Pilifrum</i> (Banks et soland.)	Th	IT
<i>Hetero caryum szovitsianum</i> (Fisch. et c.A.Mey.) A.DC.	Th	IT
<i>Hibiscus syriacus</i> L.	Th	IT
<i>Hibiscus trionum</i> L.	TH	IT
<i>Hirschfeldia incana</i> (L.) Lag.	Th	SS-IT
<i>Hordeum glaacum</i> Steud.	Ge	ES-IT
<i>Hordeum marinum</i> Hudson.	Th	ES-IT
<i>Hordeum spontan eum</i> C. Kock	Th	IT
<i>Hordrum bulbosum</i> L.	Ge	ES-IT
<i>Hymenocrater longiforus</i> Bench.	Ch	IT
<i>Hyoscyamus</i> sp.	He	IT
<i>Hypocoum pendulum</i> L.	Th	SS-ES-IT
<i>Hypericum scabrum</i> L.	He	IT
<i>Iris aucheri</i> (Baker) sealy	Ge	IT
<i>Iris hymenospata</i> Mathew & Wendelbo	Ge	SS-IT
<i>Iris reticulate</i> M.B Var. reticulate	Ge	ES-IT
<i>Isatis lustitanica</i> L.	Th	ES-IT
<i>Isatis rephani folia</i> Boiss	Th	IT
<i>Carex stenophyla</i>	Hel	IT
<i>Rumex acetosa</i> L	He	IT
<i>Ixiolirion txtaricum</i> (pall) Herb.	Ge	SS-ES-IT
<i>Johrenia aramatica</i> Rech. F. Unm bell.	He	IT
<i>Juglana regia</i> L.	Ph	ES-IT
<i>Juncus inflexus</i> L.	Hel	ES-IT
<i>Juncus bufonius</i> L.	Hel	ES-IT
<i>Juncus articulatus</i> L.	Hel	ES-IT
<i>Kochia scoparia</i> (L.) schar.	Th	IT
<i>Lactuca</i> sp.	Th	IT
<i>Lagoecia cuminoides</i> L.	Th	SS-IT
<i>Lisaea heterocarpa</i>	Th	SS-IT

(Continued)

Plant name and family	Karyotype	Region plants
<i>Lallemantia iberica</i> (Stev.) Fishch. et C. A. Mey.	Th	ES-IT
<i>Lappula</i> sp.	Th	IT
<i>Lathyrus inconspicuus</i> L.	Th	ES-IT
<i>Lens cyanea</i> (Boiss. & Hohen.) Al	Th	SS-IT
<i>Lens culinaris</i> Mmedicus.	TH	IT
<i>Lepidium cartilagineum</i> (J.marer) thell	Th	IT
<i>Lepidium vesicarium</i> L.	Th	IT
<i>Leptaleum filifolium</i> (Willd.) Dc.	Th	ES-IT
<i>Ligustrum vulgare</i> L.	Ph	IT
<i>Linaria chalepensis</i> (L.) Miller.	Th	SS-ES-IT
<i>Linaria grandiflora</i> Desf.	Th	IT
<i>Linum mucronatum</i> Subsp. Assyriacum	Th	IT
<i>Linum strictum</i> L.	TH	IT
<i>Lolium permne</i> L.	Th	ES-IT
<i>Lonicera numm ulariifolia</i> Jaub. et Spach.	Ph	SS-IT
<i>Loranthus europaeus</i> Jacq Enum Stirp.	Ph	IT
<i>Loranthus grewinkii</i> Boiss et Buhse	Ph	IT
<i>Lysimachia linum – stellatum</i> L.	Th	SS-ES-IT
<i>Malabaila secacul</i> (Miller) Boiss.	Ge	IT
<i>Malva neglecta</i> Wallr.	Th	IT
<i>Marrubium astracanicum</i> Jacq.	Ch	ES-IT
<i>Marrubium</i> sp.	He	IT
<i>Matthiola</i> sp.	Th	IT
<i>Medicago sativa</i> L.	He	ES-IT
<i>Melica persica</i> subsp persica	He	IT
<i>Melilotus indicus</i> (L.) All.	Th	SS-IT
<i>Melilotus officinalis</i> (L.) Desr	Th	IT
<i>Mentha longifolia</i> (L.) Hudson	He	ES-IT
<i>Mentha</i> sp.	He	IT
<i>Milium vernal</i> M.B	Th	ES-IT
Mobayenii Ghahreman & Attar, Iran	He	IT
<i>Morus alba</i> L.	Ph	SS-ES-IT
<i>Morus nigra</i> L.	PH	
<i>Myriophyllum verticillatum</i> L.	Hy	IT
<i>Myriophyllum fabmersum</i> L.	Th (Hy)	IT
<i>Neslia apiculata</i> Fisch	Th	IT-ES
<i>Nigella arvensis</i> L.	Th	IT
<i>Noae mucronata</i> (Forsk.) Aschers	Th	Eh-IT
<i>Nonnea</i> sp.	Th	ES-IT
<i>Notobasis syriaca</i> (L.)	Th	SS-IT
<i>Nuphar luteum</i> (L.) Smith	Hy	IT
<i>Oliveria decumbens</i> Vent.	Th	SS-IT
<i>Onobrychis</i> sp.	Th	IT
<i>Onobrychis melanotricha</i> Boiss., Diagno.	Th	IT
<i>Onosma</i> sp.	He	SS-IT
<i>Onosma</i> sp.	Ge	SS-IT
<i>Onosma bulbotrichum</i> Dc.prodr.	He	IT

<i>Onosma macro ph yllum</i> Bomm.	He	IT
<i>Ornithogalum</i> sp.	Ge	IT
<i>Ornithogalum tenuifolium</i>	Ge	IT
<i>Orobanche</i> sp.	Th	IT
<i>Orobanche alba</i> Steph.	Th	IT
<i>Orochis anatolica</i> Boiss.	Ge	IT
<i>Outreya cardui formis</i> Jaub .et spach	He	ES-IT
<i>Papaver rhoeas</i> L.	Th	SS-ES-IT
<i>Parietaria alsinifolia</i> Delile.	Th	SS-IT
<i>Parietaria judaica</i> L.	C	ES-IT
<i>Phaseolus vulgaris</i> L.	Th	IT
<i>Phleum iranica</i> Um Brom.	Th	ES-IT
<i>Phlomis olivieri</i> Benth.	He	ES-IT
<i>Phlomis persica</i> Boiss.	He	ES-IT
<i>Phlomis rigida</i> Labill.	He	IT
<i>Phlomis</i> sp.	He	Es-IT
<i>Phragmites australis</i> (Cav.) Trin. ex Steud.	Hel	SS-ES-IT
<i>Picnomon acarna</i> (L.) Cass.	He	ES-IT
<i>Picris strigosa</i> M. B. Subsp.	He	IT
<i>Pimpinella kostchyana</i> Boiss.	He	IT
<i>Pimpinella eriocarpa</i> Banks et Soland.	Th	SS-IT
<i>Pinus eldarica</i> Medw.	Ph	ES
<i>Pistacia mutica</i> Fisch. et mey.	Ph	SS-IT
<i>Pisum sativum</i> L.	Th	SS-ES-IT
<i>Plantago lanceolata</i> L.	He	SS-ES-IT
<i>Plantago major</i> L.	He	ES-IT
<i>Platanus orientalis</i> L.	Ph	IT
<i>Platycladus orientalis</i> (L.) Franco	Ph	IT
<i>Polygonum lusuloides</i> Jaub. & Spach.	Th	IT
<i>Poa bulbosa</i> L.	Th	ES-IT
<i>Polygonum alpestre</i> C. A Mey.	Th	ES-IT
<i>Polygonum</i> sp.	Ch	ES-IT
<i>Polytrichum</i> sp.	Th	ES-IT
<i>Populus caspica</i> Bomm.	Ph	ES-IT
<i>Potamogeton lucens</i> L.	Th	ES-IT
<i>Prangos</i> sp.	He	IT
<i>Prangos ferulaceae</i> (L.) Linadl.	He	IT
<i>Pterocephalus canus</i> coulter ex Dc.	He	IT
<i>Pterocephalus kurdicus</i> Vatke.	He	IT
<i>Punica grantum</i> L.	Ph	ES-IT
<i>Quercus brantii</i> Lind L.	Ph	IT
<i>Quercus in fectoria olive.</i> roy, Emp.	Ph	IT
<i>Quercus longipes</i> Stev.	Ph	IT
<i>Ranunculus</i> sp.	Ge	IT
<i>Ranunculus</i> sp.	Ge	IT
<i>Ranunculus</i> sp.	Ge	IT
<i>Ranunculus</i> sp.	Ge	IT
<i>Ranunculus arvensis</i> L.	Ge	IT
<i>Ranunculus asiaticus</i> L.	Ge	IT

(Continued)

Plant name and family	Karyotype	Region plants		
<i>Ricinus communis</i> L.	Th	IT	<i>Tamarix</i> sp.	Ph It
<i>Rosa</i> sp.	Ph	IT	<i>Taraxacum officinale</i> Weber.	He IT
<i>Rosa</i> sp.	Ph	IT	<i>Taraxacum</i> sp.	He IT
<i>Rosularia sempervivum</i> Var. <i>Sempervivum</i>	He	IT	<i>Teucrium melissoides</i> Boiss. et Hausskn. et Boiss.	He SS-IT
<i>Rosularia sempervivum</i> (M.B.) Berger	He	IT	<i>Teucrium polium</i> L.	He IT
<i>Rumex acetosella</i> L.	He	IT	<i>Teucrium parviflorum</i> Schreb.	He IT
<i>Saccharum ravennae</i> (L.) murray	He	ES-IT	<i>Physalis divaricata</i> D. Don	TH ES-IT
<i>Salix alba</i> L.	Ph	ES-IT	<i>Theligonum cynocrambe</i> L.	Th IT
<i>Salix acmophylla</i> Boiss.	Ph	ES-IT	<i>Thymelaea mesopotamica</i> (C. Jeffrey) B. Peterson	Th SS-IT
<i>Salix excelsa</i> J. F. Gmel	Ph	ES-IT	<i>Trifolium dasyurum</i> C. Presl.	Th ES-IT
<i>Salvia</i> sp.	He	IT	<i>Trifolium grandiflorum</i> Schreb.	Th SS-ES-IT
<i>Salvia bracteata</i> Banks et Soland	He	IT	<i>Trifolium purpureum</i> L.	He IT
<i>Salvia russellii</i> Benth.	He	IT	<i>Trifolium tomentosum</i> L.	Th ES-IT
<i>Salvia syriaca</i> L.	He	ES-IT	<i>Trifolium campestre</i> Schreb.	TH SS-ES-IT
<i>Salvia multicaulis</i> Vahl.	He	ES-IT	<i>Trigonella foenum – graecum</i> L.	Th SS-IT
<i>Sanguisorba minor</i> Scop.	He	ES-IT	<i>Turgenia latifolia</i> (L.) Hoffm.	Th ES-IT
<i>Scabiosa calocephala</i> Boiss.	Th	IT	<i>Typha latifolia</i> L.	Hel SS-IT
<i>Scandix pecten-veneris</i> L.	Th	IT	<i>Ulmus campestris</i> L.	Ph ES-IT
<i>Scariola orientalis</i> (Boiss) Sojak Subsp.	He	IT	<i>Umbelicus intermedius</i> Boiss.	He ES-IT
<i>Scirpus lancustris</i> L.	Hel	IT	<i>Umbilicus tropaeolifolius</i> Boiss	He IT
<i>Scorzonera phaeopappa</i> (Boiss.)	Th	IT	<i>Urtica dioica</i> L. Var. <i>dioica</i>	He SS-ES-IT
<i>Scrophularia deseti</i> Del. Descr.	He	SS-IT	<i>Urtica pilulifera</i> L.	Th SS-ES-IT
<i>Scrophularia striata</i> Boiss.	He	IT	<i>Vaccaria grandiflora</i> (fisch. ex Dc.)	Th IT
<i>Senecio vulgaris</i> L.	Th	IT	<i>Vaccaria liniflora</i> (Boiss & Hausskn)	Th IT
<i>Senecio vernalis</i> Waldst. & Kit.	Th	IT	<i>Valeriana</i> sp.	Th ES-IT
<i>Silene conoidea</i> L.	Th	IT	<i>Valerianella dufresnia</i> Bunge et Boiss.	Th ES-ES-IT
<i>Silene dichotoma</i> Ehrh., Beitr. Naturk.	Th	ES-IT	<i>Vallerianella vesicaria</i> (L.) Moench, Meth.	Th ES-IT
<i>Silene morganae</i> Freyn, Bull.	Th	IT	<i>Verbascum</i> sp.	He ES-IT
<i>Sinapis au cheri</i> (Boiss.)	Th	SS-IT	<i>Verbascum</i> sp.	He IT
<i>Sinapis arvensis</i> L.	Th	IT	<i>Verbascum</i> sp.	He ES-IT
<i>Sisymbrium irio</i> L.	Th	IT	<i>Verbascum cheiranthifolium</i> Boiss. Diagn.	He ES-IT
<i>Smyrniopsis aucheri</i> Boiss	He	IT	<i>Verbascum nudicaule</i> (Wyd.) Takht.	Th IT
<i>Smyrniium cordifolium</i> Boiss	He	IT	<i>Veronica anagallis-aquatic</i> L. Subsp. <i>Oxycarpa</i> (Boiss.)	Th IT
<i>Solanum melongena</i> L.	Th	SS-ES-IT	<i>Vicia hyrcanica</i> Fisch. et C. Amey	Th IT
<i>Solanum nigrum</i> L.	Th	SS-ES-IT	<i>Viola occulta</i> Lehmann, Ind. Sem. Hort. Bot.	Th ES-IT
<i>Solenanthes circinnatus</i> Ledeb.	He	ES-IT	<i>Viola modesta</i> Fenzl.	Th IT
<i>Sophora alopecuroides</i> L.	He	ES-IT	<i>Viola tricolor</i> L. var. <i>arvensis</i> Murr.	Th ES-IT
<i>Sorghum bicolor</i> (L.) Moench.	Ge	ES-IT	<i>Xanthium spinosum</i> L.	Th IT
<i>Sorghum halo pensis</i> (L.) Pers	Ge	ES-IT	<i>Xanthium strumarium</i> L.	Th ES-IT
<i>Spartium junceum</i> L.	Ph	ES-IT	<i>Xeranthemum squarrosum</i> Boiss.	He ES-IT
<i>Spirodela polyrrhiza</i> (L.) Schleiden	Hy	ES-IT	<i>Zeugandra iranica</i> P. H. Davis Hook.	He IT
<i>Stachys benthamiana</i> Boiss	He	IT	<i>Ziziphora clinopodioides</i> Lem.	He IT
<i>Stachys kermanshahensis</i> Rech. F. PI.	He	IT	<i>Ziziphora capitata</i> L.	Th IT
<i>Stachysin inflata</i> Bench.	He	IT	<i>Ziziphora tenuir</i> L.	Th ES-IT
<i>Sterigmostemum sulphureum</i> (Banks et Soland.) Borm.	Th	SS-IT	<i>Zoegea leptaura</i> L.	Th IT
<i>Stipa barba ta</i> Desf.	He	IT		

Table 1: Plant name and family in the study area (Karyotype and region)

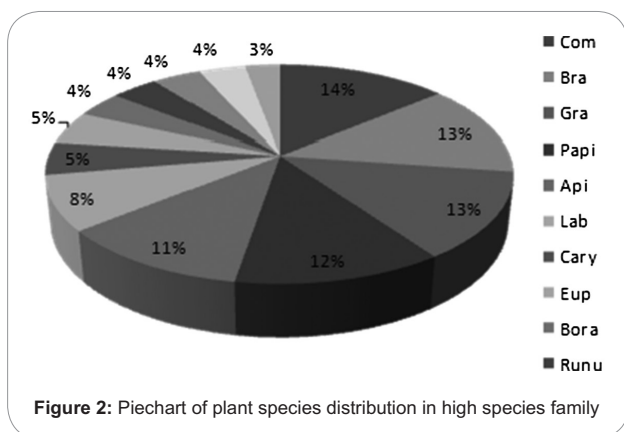


Figure 2: Piechart of plant species distribution in high species family

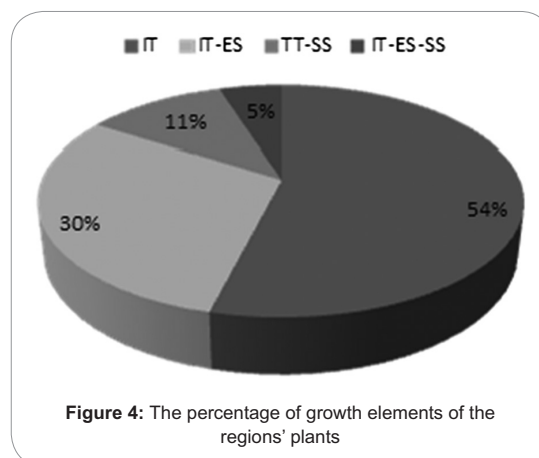


Figure 4: The percentage of growth elements of the regions' plants

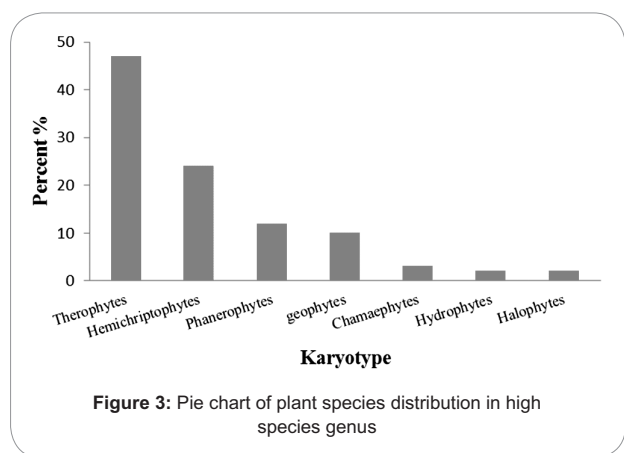


Figure 3: Pie chart of plant species distribution in high species genus

The largest genera in the region are Euphorbiai (7 spp.), Allium (5 spp.), Trifolium (5 spp.), Convolvulus (4 spp.), Hordeum (4 spp.), and Salvia (4 spp.).

The percentages of biological shapes of plants in the region are: 47% (Therophytes), 24% (Hemichriptophytes), 12% (Phanerophytes), 10% (Geophytes), 30% (Chamaephytes), 2% (Hydrophytes), and 2% (Halophytes).

The geographical dispersion of the plants in the region is as follows:

Iranian-Toranic (54%), European-Syrian (30%), Sahara-Sydney (11%), and worldwide (5%).

## Discussion

The flora of the region has been investigated for the first time, and it was clear that the flora has 255 genera, 335 species, and 79 families. Composite (29 spp), Brassicaceae (28 spp), Gramineae (27 spp), Papilionaceae (26 spp), Apiaceae (24 spp.), and Labiateae (17 spp) are the most common. Euphorbiae (7 spp.) is the largest genus in the region, and the lowest growth shapes belong to: trophits (47%), Hydrophytes (02%), Halophytes (02%).

In terms of vegetative geography, Islam Abad Gharb belongs to Iranian-Toranic area, and it is confirmed by the results that show that more than half of the species (54%) are in this region. The comparison of chorotypes of plants in different habitats show that Iranian-toranic species increases with the increase in height while Sahara-Sandi

species decreases. Among the trees and shrubs are *Quercus brantii*, *Q. infectoria*, *Q. libani*, *var persica*: *Cratagus pontica*, *Daphne mucronata*, *Cerasus microcarpa subsp. tortuosa*, *Acer monspessulanum subsp.*, and *Amygdalus orientalis subsp. orientalis*.

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